

INSTRUCTIONS FOR TUNING RECEIVER AND TRANSMITTER

SECTIONS OF COMMUNICATION UNIT

1. EQUIPMENT REQUIRED

- a) Vacuum Tube Voltmeter--RCA Volttohmyst, Jr., or equivalent.
- b) Signal sources of 8.25 mc (FM) and 152 - 162 mc (unmodulated).

2. RECEIVER ALIGNMENT (See top view of receiver)

CAUTION

TIGHTEN ALL FRICTION NUTS ON RECEIVER AND TRANSMITTER TUNING ADJUSTMENTS BEFORE STARTING TUNING AND ALIGNMENT. USE INSULATED TUNING TOOL.

Connect D-C vacuum tube voltmeter probe into J503. Remove oscillator multiplier tube (6J6).

Feed signal generator into J502. No blocking capacitor is required. Set signal generator to 8.25 mc. Turn on all equipment and allow five minutes to warm up. Primary voltage at power supply should be 6.3 volts.

Set the signal generator attenuator so that the VTVM reads between five and ten volts at J503.

Adjust E501, T503, T502 and T501 for maximum readings. Reduce signal generator input as the circuits are resonated to maintain the VTVM reading at J503 between five and ten volts. Repeat this process until all circuits are completely aligned.

Leave signal source connected as before with sufficient input for five to ten volts at J503, then move VTVM probe to the junction of the discriminator lead resistors (R522 and R525). Tune T504-P for maximum reading. Change VTVM probe to J504 and tune T504-S for zero voltage. *Caution:* Be sure discriminator is balanced on the linear portion of the slope. Throw the polarity reversing switch of the VTVM to both plus and minus to be certain that the needle is exactly on zero.

Remove signal generator from J502 and plug VTVM into J502. Replace the oscillator-multiplier tube (6J6).

Turn oscillator inductance slug E502 (L513) counterclockwise (to inductive side) as far as it will go. Do not force the screw. Maximum height will be about 3/8 inch. Now rotate oscillator (E502) slowly clockwise until the 6J6 stops oscillating as indicated on the VTVM. *Note:* If the harmonic amplifier (E502) is badly detuned, the VTVM reading will be small but should be readily discernible on the lowest scale.

Rotate oscillator screw (E502) slowly counterclockwise until oscil-

lation just begins (as indicated on VTVM) and continue in the same direction about one third turn.

Adjust harmonic amplifier L514 (E502) for maximum (about five to ten volts).

Connect R-F signal generator to the antenna jack (J501) and VTVM probe in J503. Carefully adjust signal generator for maximum reading on VTVM then reduce output for a five to ten volt reading at J503. Adjust R-F plate trimmer (C508) and antenna trimmer (C501) for maximum. Reduce signal generator attenuator to maintain five to ten volt reading on VTVM. Repeat adjustment of C508 and C501. Retrim harmonic amplifier (E502) for maximum reading at J503. *Note:* When unit is installed, retrim C501 for maximum output using the fixed station transmitter as a signal source.

3. TONE GATE ADJUSTMENT

Plug in Tone Filter () of proper frequency and rotate R532 threshold control fully counterclockwise.

Connect VTVM probe to J503. Connect signal generator into J502. Set generator at 8.25 mc and feed in sufficient signal to give ten volts at J503. Recheck signal generator for zero balance (probe in J504).

Modulate the FM signal generator with a tone at the frequency of the Type MR-76() Tone Filter being used. (Use 15 kc deviation for 1000 cycles and *above*. Use 7.5 kc deviation for tone frequencies *below* 1000 cycles). Rotate tone gate control (R532) slowly clockwise until the squelch operates. Leave in this position.

An additional potentiometer (R546) is mounted on a bracket above T505 near the Tone Gate adjustment (R532). Its function is to provide a positive "bucking out" voltage on the grid of the tone gate tube to offset the negative potential developed by random noise which tends to affect operation of the relay.

The receiver should be aligned in the normal manner with potentiometer (R546) in its extreme counterclockwise position. The bucking voltage is adjusted when the communication unit is installed in the car. Proceed as follows:

1. With the receiver turned on and a D-C VTVM across J503 and ground, accelerate the motor up and down until the point is found where the negative voltage at J503 is greatest. At this point, rotate the potentiometer clockwise until the VTVM reading is about -0.2 volt. When the engine is idling or turned off, this reading may fall to zero or even go positive if an unusually high noise level requires high bucking voltage.
2. With the handset in the cradle, have the dispatcher put on his calling tone and observe the operation of the relay both with the engine idling and at the point of greatest noise. If necessary,

readjust R546 below the -0.2-volt level sufficiently to provide positive relay action when the calling tone is transmitted. However, this value has been found to be satisfactory under normal conditions.

Note: Do not forget to retrim the antenna adjustment (C501) when the unit is installed in the vehicle. The B+ fuse is accessible from the front panel.

WARNING

ONLY PERSONS HOLDING PROPER FCC LICENSES ARE
PERMITTED TO MAKE ADJUSTMENTS ON THE TRANS-
MITTER.

4. TRANSMITTER TUNING

The transmitter can be tuned with a meter and switch such as shown in the drawing. Note that the meter must be 0-1 ma movement with 100 ohms d-c resistance. The cable plug is a miniature seven-prong male type manufactured by Cinch and Amphenol. If such a plug is not available, ordinary meter probes can be used if care is exercised in making good contact with the socket pins. No external meter shunts or multipliers are required if the basic d-c meter, described above, is used. All necessary resistors are built into the equipment (see schematic diagram). Note that the positive side of the meter is connected to ground except at EE¹.

While a #47 brown bead 6-volt pilot lamp with adaptor to fit the antenna receptacle will serve as a dummy load for rough tune ups, it is strongly recommended that a simple field strength meter be used for final adjustments, particularly when the equipment is installed and connected to its actual antenna.

CAUTION

TRANSMITTER MUST BE TUNED WITH SHIELDS IN PLACE
ON ALL TUBES. (NO SHIELD REQUIRED ON V102-2E30.)

Turn on primary power and allow about three minutes warm up period. The handset press-to-talk button can be used to turn on the transmitter. Do not hold the press-to-talk button down for more than ten seconds at a time until the final amplifier is resonated.

Use the following procedure: (See top view of transmitter).

- a) With the meter in position A, adjust L108 (oscillator plate) for maximum. Then rotate in a clockwise direction until meter reading falls not over 10%. (This places the circuit on the capacitive side for improved stability.)
- b) With meter in position B, tune L107 (quad. plate) for maximum.

- c) With meter in position C, tune L106 (trip. plate) for maximum.
- d) With meter in position D, tune L104 (doubler plate) for maximum.
- e) With meter across E-E¹ tune C126 (P.A. plate) for a minimum dip. Since the P.A. stage is a doubler, the dip may not be readily discernible. A field strength meter will give a more reliable indication. Adjust C126 for *maximum* reading on the field strength meter.
- f) Using field strength meter, tune C125 (antenna trimmer) for maximum reading.
- g) When the unit is installed and connected to the car antenna, re-trim C125 for maximum reading on the field strength meter.

TYPICAL METER READINGS WHEN TUNING TRANSMITTER

Pin #X107	Meter Position	Function	Tube	Approx. reading (min.)	Full Scale Meter Range
2	A	Quad. Grid	V104	.4	2 ma
3	B	Trip. Grid	V103	.3	2 ma
4	C	Doubl. Grid	V102	.4	4.7* ma
5	D	P. A. Grid	V101	.55	4.7* ma
1-7	EE ¹	P. A. Plate	V101	.45*	100 ma

* Change

CAUTION

DO NOT DISTURB TRANSMITTER OR RECEIVER CRYSTAL TRIMMERS UNLESS A SECONDARY FREQUENCY STANDARD IS AVAILABLE.

BE SURE UNIT IS MOUNTED IN VEHICLE WITH RECEIVER SECTION ON TOP.

ELECTRICAL PARTS LISTS
FOR
RTR-2 MOBILE COMMUNICATION SYSTEM USING
TYPE MRT-3B COMMUNICATION UNIT

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Benlix Part No.</i>
Transmitter Section -- MRT-3B			
CAPACITORS			
C101	Not used		
C102	Not used		
C103	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 filament bypass	C65547-471
C104	Not used		
C105	47 mmf, ceramic, $\pm 10\%$, 500v dcw	V102 to V101 coupling	CC21UK470K
C106	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V102 plate bypass	C65547-471
C107	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V102 screen bypass	C65547-471
C108	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V102 filament bypass	C65547-471
C109	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V102 grid bypass	C65547-471
C110	47 mmf, ceramic, $\pm 10\%$, 500v dcw	V103 to V102 coupling	CC21UK470K
C111	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V103 plate bypass	C65547-471
C112	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V103 screen bypass	C65547-471
C113	47 mmf, ceramic, $\pm 10\%$, 500v dcw	V104 to V103 coupling	CC21UK470K
C114	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V104 screen bypass	C65547-471
C115	2700 mmf, ceramic, $\pm 20\%$, 300v dcw	V104 plate bypass	C220069-272
C116	47 mmf, ceramic, $\pm 10\%$, 500v dcw	V105 to V104 coupling	CC21UK470K
C117	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V105 screen bypass	C65547-471
C118	Not used		
C119	3-30 mmf, variable air trimmer	V105 grid tuning	C219020
C120	Not used		
C121	Not used		
C122	Not used		
C123	15 mf, electrolytic, 8v dcw	Speech input	C220065-1
C124	Not used		
C125	3-30 mmf, variable air trimmer	Antenna tuning L101 sec.	C219020
C126	3-30 mmf, variable air trimmer	P.A. tuning L101 pri.	C219020
C127	22 mmf, ceramic, $\pm 10\%$, 500v dcw	P.A. tuning L101 pri.	CC21CH200K
C128	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 plate bypass	C65547-471
C129	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 plate B+ bypass	C65547-471
C130	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 screen to fil. bypass	C65547-471
C131	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 plate to fil. bypass	C65547-471
C132	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 filament bypass	C65547-471
C133	20 mmf, ceramic, $\pm 10\%$, 500v dcw	V105 cathode bypass	CC26CH200K
C134	47 mmf, ceramic, $\pm 10\%$, 500v dcw	V105 grid to cathode	CC30CH470K
C135	22 mmf, mica, $\pm 10\%$, 500v dcw	V103 plate resonator	CM20C220K
C136	47 mmf, mica, $\pm 10\%$, 500v dcw	V104 plate resonator	CM20C470K
C137	82 mmf, mica, $\pm 10\%$, 500v dcw	V105 plate resonator	CM20C820K
C138	0.1 mf, paper, 400v dcw	V105 screen B+ filter	C220028-45
C139	Not used		

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
Transmitter Section -- MRT-3B			
CAPACITORS (Cont'd)			
C140	18 mmf, ceramic, $\pm 10\%$, 500v dcw	V102 plate resonator	C220091-180
C141	2700 mmf, ceramic, $\pm 20\%$, 300v dcw	V105 plate bypass	C220069-272
C142	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 plate bypass	C65547-471
C143	20 mmf, ceramic, $\pm 10\%$, 500v dcw	V105 grid temp. com- pensator	CC26CE200K
C144	470 mmf, ceramic, $\pm 20\%$, 300v dcw	V101 grid bypass	C65547-471
REACTORS			
L101	Coupling coil assembly	Antenna coupling	A215448
L102	Final coil assembly	V101 P.A. tank	C215443-1
L103	R.F. choke	V101 plate	C215092-1
L104	Doubler coil assembly	V102 plate resonator	C215444-1
L105	R.F. choke	V102 grid	C215092-1
L106	Tripler coil assembly	V103 plate resonator	C215447-1
L107	Quadrupler coil assembly	V104 plate resonator	C215446-1
L108	Oscillator coil assembly	V105 plate resonator	C215445-1
L109	R.F. choke	V101 grid	C215092-1
L110	Reactor	Speech input	A213114
L111	Choke	V105 cathode	C215351-1
RESISTORS			
R101	1.0 ohms, 1/2w, ww, $\pm 5\%$	Meter shunt, P.A. plate I	C220540-4
R102	10K, 1w comp. res., $\pm 10\%$	V101 screen dropping	C60070-103
R103	Not used		
R104	27 ohms, 1/4w, comp. res., $\pm 10\%$	Meter shunt, P.A. grid I	RC10BF270K
R105	22K, 1w, comp. res., $\pm 10\%$	V102 screen dropping	C60070-223
R106	Not used		
R107	27 ohms, 1/4w, comp. res., $\pm 10\%$	Meter shunt, doubler grid I	RC10BF270K
R108	Not used		
R109	15K, 1/2w, comp. res., $\pm 10\%$	V103 screen dropping	C60068-153
R110	100 ohms, 1/4w, comp. res., $\pm 10\%$	Meter shunt, trip. grid I	RC10BF101K
R111	100K, 1/4w, comp. res., $\pm 10\%$	V103 grid	RC10BF104K
R112	33K, 1/2w, comp. res., $\pm 10\%$	V104 screen dropping	C60068-333
R113	100 ohms, 1/4w, comp. res., $\pm 10\%$	Meter shunt, quad. grid I	RC10BF101K
R114	82K, 1/4w, comp. res., $\pm 10\%$	V104 grid	RC10BF823K
R115	Not used		
R116	Not used		
R117	Not used		
R118	Not used		
R119	Not used		
R120	Not used		
R121	Not used		
R122	Not used		
R123	Not used		

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
Transmitter Section -- MRT-3B			
RESISTORS (Cont'd)			
R124	Not used		
R125	180 K, 1/2w, comp. res., $\pm 5\%$	V105 screen dropping	RC20BF184J
R126	Not used		
R127	15K, 1/2w, comp. res., $\pm 10\%$	V105 grid return	C60068-153
R128	220 ohms, 1/2w, comp. res., $\pm 10\%$	V105 plate dropping	C60068-221
R129	220 ohms, 1/2w, comp. res., $\pm 10\%$	V104 plate dropping	C60068-221
R130	220 ohms, 1/2w, comp. res., $\pm 10\%$	V103 plate dropping	C60068-221
R131	220 ohms, 1/2w, comp. res., $\pm 10\%$	V102 plate dropping	C60068-221
R132	33K, 1/2w, comp. res., $\pm 10\%$	V102 grid	C60068-333
R133	33K, 1/2w, comp. res., $\pm 10\%$	V101 grid	C60068-333
TRANSFORMER			
T101	Microphone transformer	Speech input	A213380
VACUUM TUBES			
V101	Tube, Type 2E30	Power amplifier	
V102	Tube, Type 2E30	Doubler	
V103	Tube, Type 6AK6	Tripler	
V104	Tube, Type 6BJ6	Quadrupler	
V105	Tube, Type 6BJ6	Oscillator	
SOCKETS			
X101	Tube socket	V101 socket	C223181-2
X102	Tube socket	V102 socket	C223181-2
X103	Tube socket	V103 socket	C223181-2
X104	Tube socket	V104 socket	C223181-2
X105	Tube socket	V105 socket	C223181-2
X106			
X107	Tube socket	Meter socket	C223470-2
X108	Crystal holder assembly	Crystal socket	C202373-1
CRYSTAL			
Y101		Frequency control	
Power Supply -- MRT-3B			
CAPACITORS			
C201A	20 mf) dual, electrolytic,		
C201B	20 mf) 450v dcw	B+ filter	C220044-1
C202	.02 mf, paper, $\pm 20\%$, 1600v dcw	Buffer	C220066-1
C203	6800 mmf, mica, $\pm 20\%$, molded phenolic case.	Hash filter	C60290-682
C204	.02 mf, paper, $\pm 20\%$, 1600v dcw	Buffer	C220066-1
C205	.1 mf, paper, $\pm 10\pm 20\%$, 600v dcw	Filter	C220066-2

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
	Power Supply -- MRT-3B		
	MOUNTINGS		
E201	Fuse mounting, primary	Mount for F201	C232998-1
F202	Fuse mounting, extractor type	Mount for F202	A30003
	FUSES		
F201	Fuse, 30a, 5AG	6v input fuse	C221605-30
F202	Fuse, 1/4a, 3AG, fast blow	B+ fuse	C221603-251
	RECEPTACLES		
J201	Receptacle, 2 contact, female	Receptacle for P201, 6v input	A202454-2
J202	Receptacle, 8 contact, female, 1-1/4" dia. x 1-9/16" lg, for 1/2" cable	Receptacle for P301, input from MS-140A	C223114-2
	RELAYS AND VIBRATORS		
K201	Relay, 5.3v, 11.3 ohms, SPST bridging type	Power on-off	A202571-1
K202	Vibrator, 6v, 9a, input, full wave	Converter, d-c to a-c	C222723-6
	REACTORS		
L201	Reactor assembly	B+ filter choke	A213376
	PLUG		
P201	Receptacle, 2 pin, male	6v input	A202454-1
	RESISTOR		
R201	270K, 1/2w, comp. res. $\pm 10\%$	B+ bleeder	RC20BF272K
	TRANSFORMER		
T201	Transformer, vibrator	Supply for V201	C213382
	VACUUM TUBE		
V201	Tube, type 6X5GT, High Vacuum	Rectifier	Type 6X5GT
	SOCKETS		
X201	Tube socket, octal, phenolic	Socket for V201	C223197-1
X202	Socket, 6 terminal, Vibrator	Socket for K202	C223459-1

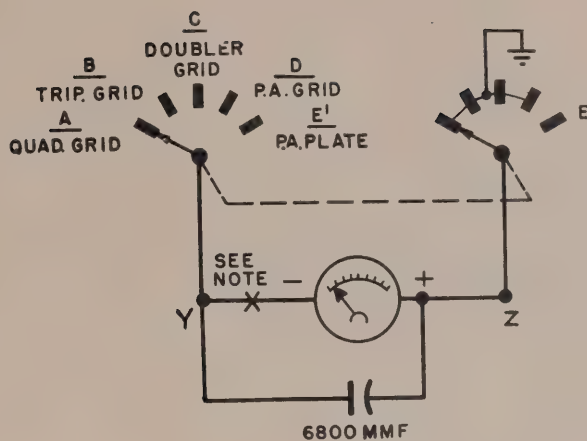
Circuit Symbol	Description	Function	Bendix Part No.
	Receiver Section -- MRT-3B		
	CAPACITORS		
C501	3-30 mmf, variable air trimmer	Antenna Trimmer	C219020
C502	10 mmf, ceramic, ± 1 mmf, 500v dcw	Antenna Coupling	CC30CK100F
C503	680 mmf, ceramic, $\pm 20\%$, 300v dcw	R.F. Cathode	C65547-681
C504	680 mmf, ceramic, $\pm 20\%$, 300v dcw	R.F. Cathode	C65547-681
C505	680 mmf, ceramic, $\pm 20\%$, 300v dcw	R.F. Screen	C65547-681
C506	680 mmf, ceramic, $\pm 20\%$, 300v dcw	R.F. Plate	C65547-681
C507	680 mmf, ceramic, $\pm 20\%$, 300v dcw	R.F. Plate	C65547-681
C508	3-30 mmf, air trimmer, variable	R.F. Trimmer	C219020
C509	10 mmf, ceramic, ± 1 mmf, 500v dcw	R.F. Coupling	CC30CK100F
C510	10 mmf, ceramic, ± 1 mmf, 500v dcw	Oscillator Coupling	CC30CK100F
C511	2700 mmf, ceramic, 500v $\pm 20\%$	Mixer Screen	C220069-272
C512	2700 mmf, ceramic, 500v $\pm 20\%$	Mixer Plate	C220069-272
C513	33 mmf, $\pm 5\%$, 500v dcw, ceramic	Mixer Plate Shunt	CC30LF330J
C514	33 mmf, $\pm 5\%$, 500v dcw, ceramic	I.F. Grid Shunt	CC30LF330J
C515	6800 mmf, mica, $\pm 20\%$, molded phenolic case	I.F. Cathode	C60290-682
C516	2700 mmf, ceramic, $\pm 20\%$, 300v dcw	I.F. Screen	C220069-272
C517	2700 mmf, ceramic, $\pm 20\%$, 300v dcw	I.F. Plate	C220069-272
C518	33 mmf, N80 500v $\pm 5\%$, ceramic	I.F. Plate Shunt	CC30LF330J
C519	33 mmf, N80 500v $\pm 5\%$, ceramic	I.F. Grid Shunt	CC30LF330J
C520	6800 mmf, mica, $\pm 20\%$, molded phenolic case	I.F. Cathode	C60290-682
C521	2700 mmf, ceramic, $\pm 20\%$ 300v dcw	I.F. Screen	C220069-272
C522	2700 mmf, ceramic, $\pm 20\%$ 300v dcw	I.F. Plate	C220069-272
C523	33 mmf, N80 500v $\pm 5\%$, ceramic	I.F. Plate Shunt	CC30LF330J
C524	33 mmf, N80 500v $\pm 5\%$, ceramic	Doub. G. Shunt	CC30LF330J
C525	10 mmf, ceramic, ± 1 mmf, 500v dcw	Doub. G. Coup.	CC30CK100F
C526	680 mmf, ceramic, $\pm 20\%$, 300v dcw	Doub. Screen	C65547-681
C527	47 mmf, N30 500v $\pm 5\%$, ceramic	Doub. P. Tank	CC30HF470J
C528	680 mmf, ceramic 600v dcw	Doub. Plate	C65547-681
C529	10 mmf, ceramic, 500v dcw	Lim G. Coup	CC30CK100F
C530	6800 mmf, mica, $\pm 20\%$, molded phenolic case	B+ Bypass	C60290-682
C531	680 mmf, ceramic, $\pm 20\%$, 300v dcw	Lim, Screen	C65547-681
C532	68 mmf, ceramic, $\pm 20\%$, 500v dcw	Disc, Coup.	C65547-680
C533	47 mmf, N80 500v $\pm 5\%$, ceramic	Disc. Tank	CC30LF470J
C534	47 mmf, N30 500v $\pm 5\%$, ceramic	Lim P. Tank	CC30HF470J
C535	100 mmf, ceramic, $\pm 20\%$, 500v dcw	Disc. Load	C65547-101
C536	680 mmf, ceramic, $\pm 20\%$, 300v dcw	Lim Plate	C65547-681
C537	100 mmf, ceramic, $\pm 20\%$, 500v dcw	Disc. Load	C65547-101
C538	3300 mmf, mica	De-emphasis capacitor	CM35A332K
C539	470 mmf, ceramic, $\pm 20\%$, 500v dcw	Audio Coupl.	C65547-471
C540	2700 mmf, ceramic, $\pm 20\%$, 300v dcw	P.A. G. Coup.	C220069-272
C541	10 mf, electrolytic 25v dcw	P.A. Cathode	A30986-4
C542	10 mfd, electrolytic, 450v dcw	P.A. Screen	C220067-1
C543	3300 mmf, mica	P.A. Plate	CM35A332K
C544	6800 mmf, mica, $\pm 20\%$, molded phenolic case	Tone Coup.	C60290-682

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
	Receiver Section -- MRT-3B		
	CAPACITORS (Cont'd)		
C545	.02 mf, 200v paper	Tone Coup.	C220030-19
C546	.1 mf, 400v, paper	Squelch Fil.	C220028-45
C547	3-30 mmf, variable air trimmer	Osc. Trimmer	C219020
C548	2700 mmf, 300v $\pm 20\%$, ceramic	Osc. Fil. Bypass	C220069-272
C549	100 mmf, ceramic 500v $\pm 20\%$	Osc. Coup.	C65547-101
C550	2700 mmf, 300v $\pm 20\%$, ceramic	B+ Bypass	C220069-272
C551	2700 mmf, 300v $\pm 20\%$, ceramic	Osc. Plate Bypass	C220069-272
C552	2700 mmf, 300v $\pm 20\%$, ceramic	Trip. Plate Bypass	C220069-272
C553	33 mmf, ceramic N80 500v $\pm 5\%$	Osc. Shunt	CC30LF330J
C554	10 mmf, ceramic, ± 1 mmf, 500v dcw	Trip. Shunt	CC30CK100F
C555	2700 mmf, ceramic 300v $\pm 20\%$	Filter Bypass	C220069-272
C556	2700 mmf, ceramic, 300v $\pm 20\%$	V501 Heater bypass	C220069-272
E501	Coil and can assembly doubler	Doubler	L203057-1
E502	Coil and can assembly oscillator	Oscillator	L203059-1
	JACKS		
J501	Connector; single conductor, spring tension, bayonet type	Antenna Connector	A223364-2
J502	Receptacle; insulated pin type, 1/4 x 32 threads	Meter Jack	A223127-1
J503	Receptacle; insulated pin type, 1/4 x 32 threads	Meter Jack	A223127-1
J504	Receptacle; insulated pin type, 1/4 x 32 threads	Meter Jack	A223127-1
	RELAYS		
K501	Relay; telephone midget type, 6v d-c nominal, 2-form "C" contacts	Antenna Relay	C218215-1
K502	Relay; telephone midget type, 6v d-c nominal, 2-form "C" contacts	Cradle Switch Relay	C218215-1
K503	Relay; sensitive type, 14,650 ohms coil, 1-form "B", 1-form "C" contacts	Squelch Relay	C218212-1
	REACTORS		
L501	Tuning Coil Antenna	Antenna Coil	A215460
L502	Plate Coil	R.F. Plate	A215336
L503	IF Coil Assembly	1st IF Pri.	Part of T501
L504	IF Coil Assembly	1st IF Sec.	Part of T501
L505	IF Coil Assembly	2nd IF Pri.	Part of T502
L506	IF Coil Assembly	2nd IF Sec.	Part of T502
L507	IF Coil Assembly	3rd IF Pri.	Part of T503
L508	IF Coil Assembly	3rd IF Sec.	Part of T503

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
	Receiver Section -- MRT-3B		
	REACTORS (Cont'd)		
L509	R.F. Choke	Filament Choke	AA104301-1
L510	Doubler coil assembly	IF Doubler	A215453-1
L511	Discriminator coil assembly	Discriminator Pri.	A215459-1
L512	Discriminator coil assembly	Discriminator Sec.	A215458-1
L513	Oscillator coil assembly	Xtal Oscillator	A215451-1
L514	Oscillator coil assembly	Xtal Tripler	A215450-1
	RESISTORS		
R501	100K 1/4w comp. res. $\pm 10\%$	R.F. Grid	RC10BF104K
R502	180 ohms 1/4w comp. res. $\pm 10\%$	R.F. Cathode	RC10BF181K
R503	82K 1/4w comp. res. $\pm 10\%$	R.F. Screen	RC10BF823K
R504	4700 ohms 1/2w comp. res. $\pm 10\%$	R.F. Plate	C60068-472
R505	1 meg. 1/4w comp. res. $\pm 10\%$	Meter Res.	RC10BF105K
R506	100K 1/4w comp. res. $\pm 10\%$	Mixer Grid	RC10BF104K
R507	68K 1/4w comp. res. $\pm 10\%$	Mixer Screen	RC10BF683K
R508	4700 ohms 1/2w comp. res. $\pm 10\%$	Mixer Plate	C60068-472
R509	5600 ohms 1W, comp. res. $\pm 10\%$	B+ Dropping	C60070-562
R510	180 ohms 1/4w comp. res. $\pm 10\%$	I.F. Cathode	RC10BF181K
R511	56K 1/2w comp. res. $\pm 10\%$	I.F. Screen	C60068-563
R512	4700 ohms 1/2w comp. res. $\pm 10\%$	I.F. Plate	C60068-472
R513	180 ohms 1/4w comp. res. $\pm 10\%$	I.F. Cathode	RC10BF181K
R514	56K 1/2w comp. res. $\pm 10\%$	I.F. Screen	C60068-563
R515	4700 ohms 1/2w comp. res. $\pm 10\%$	I.F. Plate	C60068-472
R516	100K 1/4w comp. res. $\pm 10\%$	Doub. Grid	RC10BF104K
R517	560K 1/4w comp. res. $\pm 10\%$	Doub. Screen	RC10BF564K
R518	100K 1/4w comp. res. $\pm 10\%$	Doub. Plate	RC10BF104K
R519	1 meg 1/4w comp. res. $\pm 10\%$	Meter Res.	RC10BF105K
R520	100K 1/4w comp. res. $\pm 10\%$	Lim. Grid	RC10BF104K
R521	2.2 meg. 1/4w comp. res. $\pm 10\%$	Lim. Screen	RC10BF225K
R522	100K 1/4w comp. res. $\pm 10\%$	Disc. Load	RC10BF104K
R523	56K 1/4w comp. res. $\pm 10\%$	Disc. Isol.	C60068-563
R524	100K 1/4w comp. res. $\pm 10\%$	Lim. Plate	RC10BF104K
R525	100K 1/4w comp. res. $\pm 10\%$	Disc. Load	RC10BF104K
R526	100K 1/4w comp. res. $\pm 10\%$	Demp. Audio	RC10BF104K
R527	5.6 meg. 1/4w comp. res. $\pm 10\%$	Audio Grid	RC10BF565K
R528	560K 1/4w comp. res. $\pm 10\%$	Audio Plate	RC10BF564K
R529	470K 1/4w comp. res. $\pm 10\%$	P.A. Grid	RC10BF474K
R530	560 ohms 1/2w comp. res. $\pm 10\%$	P.A. Cathode	C60068-561
R531	3900 ohms 2w comp. res. $\pm 10\%$	P.A. Dropping	C220509-392
R532	20K Potentiometer	Tone Gate Adj.	C219532-1
R533	1 meg. 1/4w comp. res. $\pm 10\%$	Tone Load	RC10BF105K
R534	3 ohms 1w comp. res. $\pm 5\%$	Audio Load	C220544-1
R535	1 meg. 1/4w comp. res. $\pm 10\%$	Squelch Grid	RC10BF105K
R536	1 meg. 1/4w comp. res. $\pm 10\%$	Squelch Load	RC10BF105K
R537	3 ohms 1w comp. res. $\pm 5\%$	Sidetone Div.	C220544-1
R538	0.25 ohm 1/2w comp. res. $\pm 5\%$	Sidetone Div.	C220540-2

<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
Receiver Section -- MRT-3B			
RESISTORS (Cont'd)			
R539	22K 1/4w comp. res. $\pm 10\%$	Osc. Grid	RC10BF223K
R540	56K 1/4w comp. res. $\pm 10\%$	Har. Grid	RC10BF563K
R541	33K 2w comp. res. $\pm 10\%$	Osc. Plate	C220509-333
R542	12K 2w comp. res. $\pm 10\%$	Har. Plate	C220509-123
R543	1000 ohms 10w Wirewound, $\pm 10\%$,	B+ Dropping	C220521-102
R544	4.7 meg, $\pm 10\%$, 1/2w, composition	Isolating	C60068-475
R545	220K, $\pm 10\%$, 1/2w, composition	Divider	C60068-224
R546	20K, potentiometer	Bucking adjustment	C219532-1
TRANSFORMERS			
T501	IF Coil Assembly and Can	1st I.F.	L230058-1
T502	IF Coil Assembly and Can	2nd I.F.	L203058-1
T503	IF Coil Assembly and Can	3rd I.F.	L203058-1
T504	Disc. Coil Assembly and Can	Disc.	L203056-1
T505	Output Transformer	Audio Output	L213429-1
TUBES			
V501	Type 6AK5, R-F Amplifier Pentode	R-F Amplifier	
V502	Type 6AK5, R-F Amplifier Pentode	Mixer	
V503	Type 6BJ6, R-F Amplifier Pentode	1st I-F Amplifier	
V504	Type 6BJ6, R-F Amplifier Pentode	2nd I-F Amplifier	
V505	Type 6AK5, R-F Amplifier Pentode	I-F Doubler	
V506	Type 6AK5, R-F Amplifier Pentode	Limiter	
V507	Type 6AL5, Twin diode	Discriminator	
V508	Type 6AQ6, Duplex diode, high mu triode	1st audio	
V509	Type 6AK6, P.A. amplifier,	Power Amplifier	
V510	Type 6AT6, Duplex-diode, high mu triode	Tone Gate Control	
V511	Type 6J6, Twin triode	Oscillator Harm. Amp.	
SOCKETS			
X501	7 pin, miniature	R-F Amplifier Socket	C223181-2
X502	7 pin, miniature	Mixer Socket	C223181-2
X503	7 pin, miniature	1st I-F Amplifier Socket	C223181-2
X504	7 pin, miniature	2nd I-F Amplifier Socket	C223181-2
X505	7 pin, miniature	I-F Doubler Socket	C223181-2
X506	7 pin, miniature	Limiter Socket	C223181-2
X507	7 pin, miniature	Discriminator Socket	C223181-2
X508	7 pin, miniature	1st Audio Socket	C223181-2
X509	7 pin, miniature	P.A. Socket	C223181-2
X510	7 pin, miniature	Tone Gate Socket	C223181-2
X511	7 pin, miniature	Osc.-Harm. Amp. Socket	C223181-2
X512	Xtal Holder	Crystal Socket	C232922

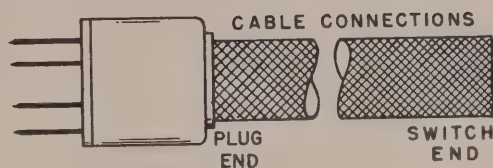
<i>Circuit Symbol</i>	<i>Description</i>	<i>Function</i>	<i>Bendix Part No.</i>
	Remote Control -- MS-140A		
	TERMINAL BOARDS AND SOCKETS		
E301	Socket, light	Lamp socket	A223116-1
E302	Green jewel, 9/16" dia. in holder having 7/16 x 27 threads	Lamp bezel	A6776-2
E303	Terminal strip, 2-1/4" lg. x 1-7/8" h, x 1/16" th, 4 solder lug term. spaced 3/8" apart	Connection to P301	C242631-1
E304	Terminal strip, 2-1/4" lg. x 1-7/8" h, x 1/16" th, 4 solder lug term. spaced 3/8" apart	Connection to P301	C242631-1
	LAMP		
I301	Bulb, Mazda, 12-16v, 0.1a, T3-1/4, 1813	Power "on" indicator	A9320-2
	SPEAKER		
LS301	Speaker, 3-5 ohms, 2-1/2" x 2-1/2" x 1-3/4", 2-1/2" PM type	Speaker	C222019-1
	PLUG		
P301	Plug, 8 pin, male	Connection to equip- ment through J202	C223122-2
	SWITCHES		
S301	Switch, SPST, 3a, 250v, toggle	Power switch	A118138-2
S302	Switch, SPST, norm. closed, pushbutton type	Cradle switch	A242646-1



SWITCH-2 POLE,5 POSITION WAFER
METER-0-1M Ω ,100 Ω DC
CAPACITOR-6800 MMF. (NOT CRITICAL)
CABLE PLUG-7 PIN MINIATURE.
Y&Z-IF EXTERNAL METER IS USED,
INSTALL PIN JACKS AT Y&Z, OBSERVE
POLARITY.

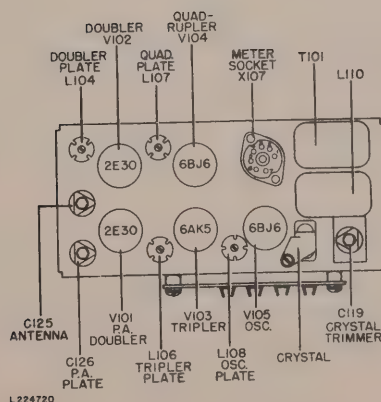
NOTE: IF METER IS LESS THAN 100 Ω , ADD
SUFFICIENT SERIES RESISTANCE AT
X TO MAKE 100 Ω TOTAL INCLUDING
METER,
EXAMPLE: 27 Ω METER, ADD 73 Ω
LETTERS ON SWITCH CONTACTS ARE
SAME AS SHOWN ON SCHEMATIC
DIAGRAM.

SEE SCHEMATIC (X107) FOR
BOTTOM VIEW OF METER PLUG
SOCKET.

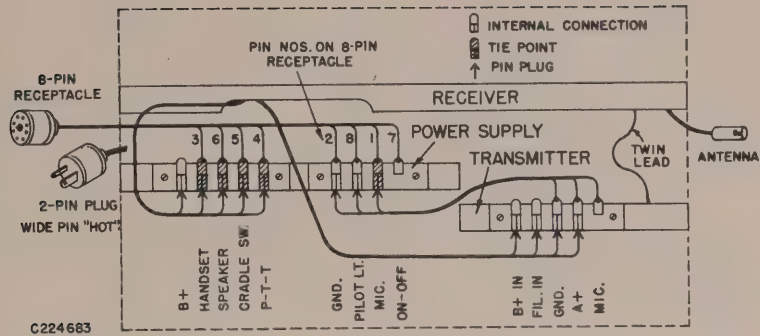


SWITCH CONNECTION	WIRE COLOR	PIN NO.
GND.	BLACK	⑥
A	BROWN	②
B	RED	③
C	ORANGE	④
D	YELLOW	⑤
E'	GREEN	⑦
E	BLUE	①

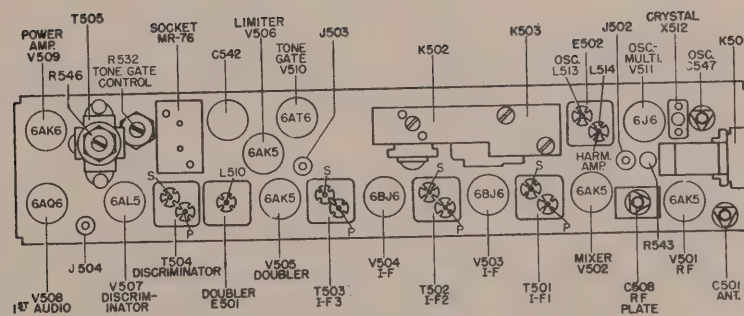
TUNING METER FOR TRANSMITTER SECTION



TUNING ADJUSTMENTS ON TRANSMITTER



INTER-UNIT CABLE DRAWING

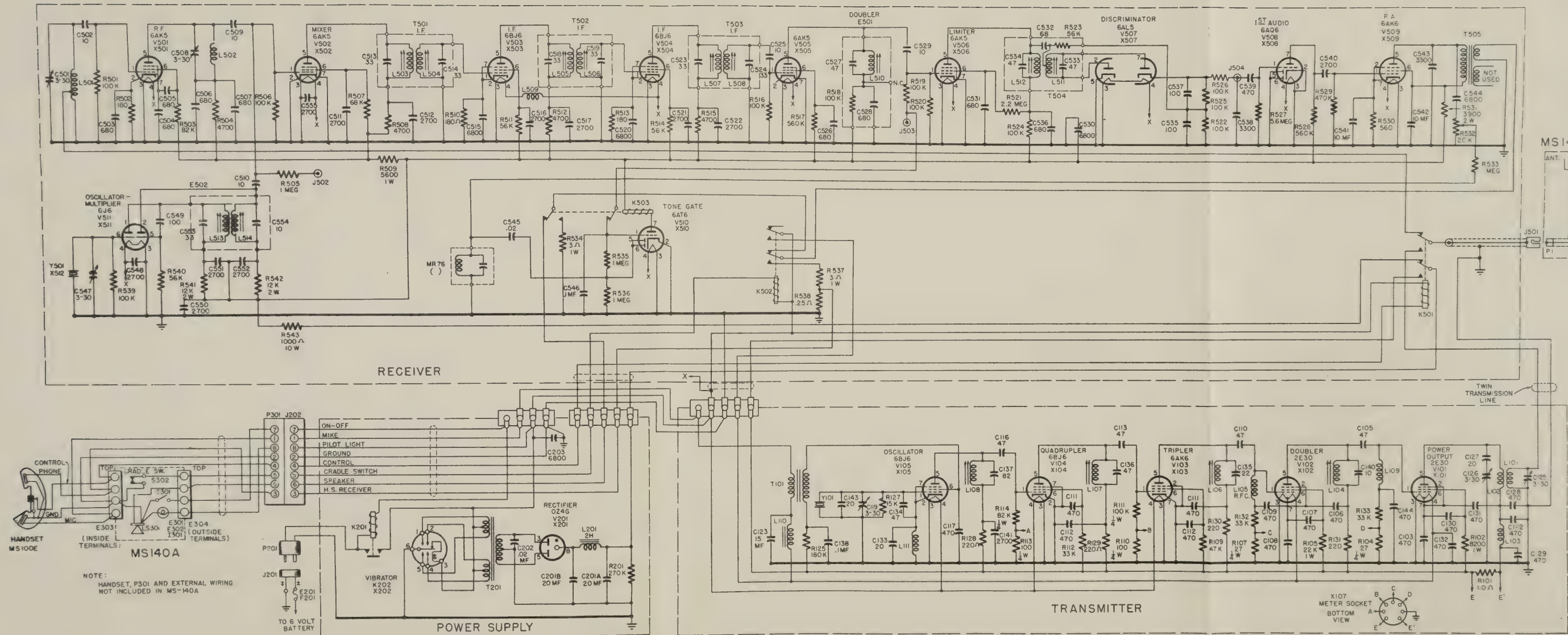


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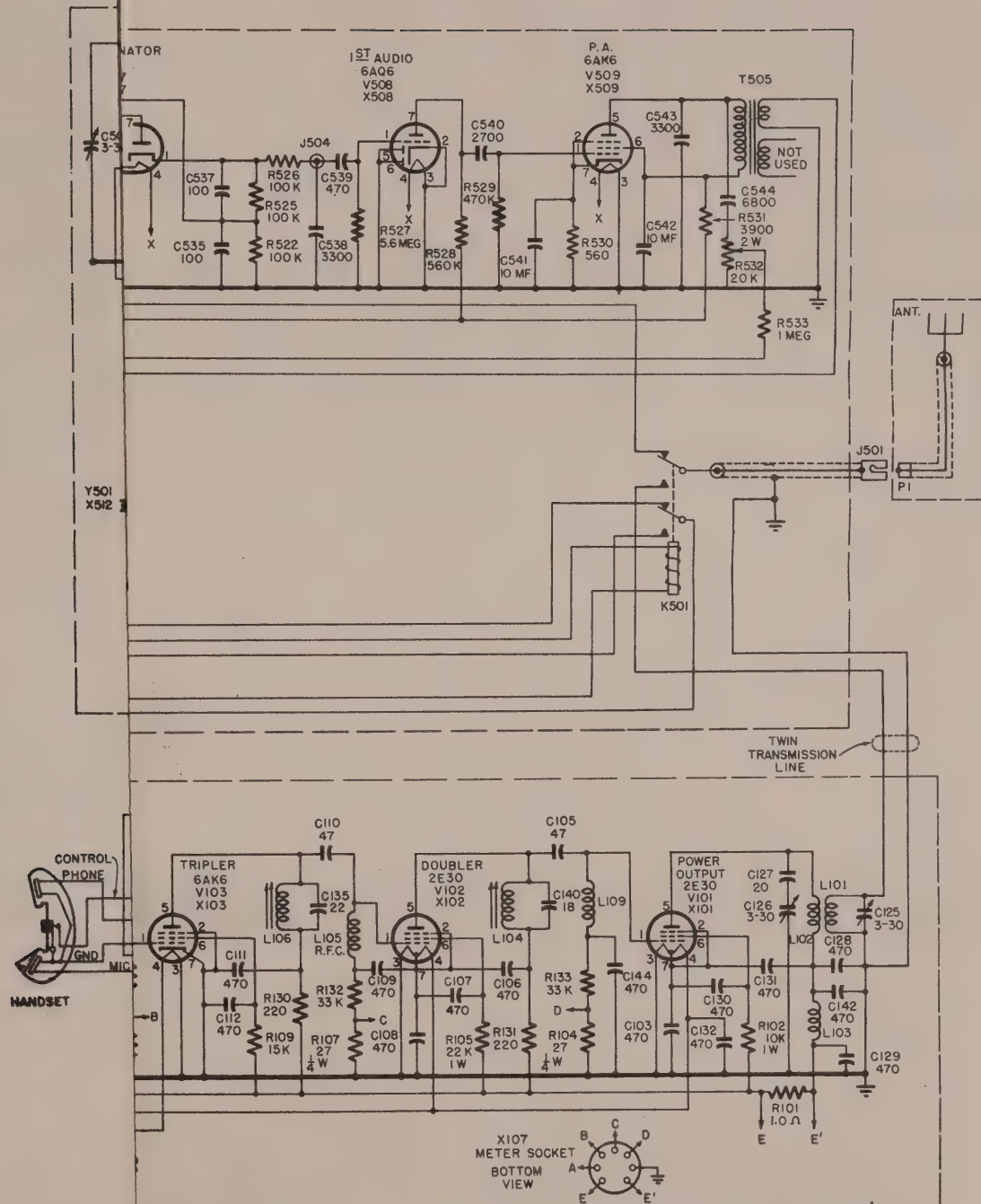
TOP VIEW OF RECEIVER SECTION SHOWING TUNING ADJUSTMENTS



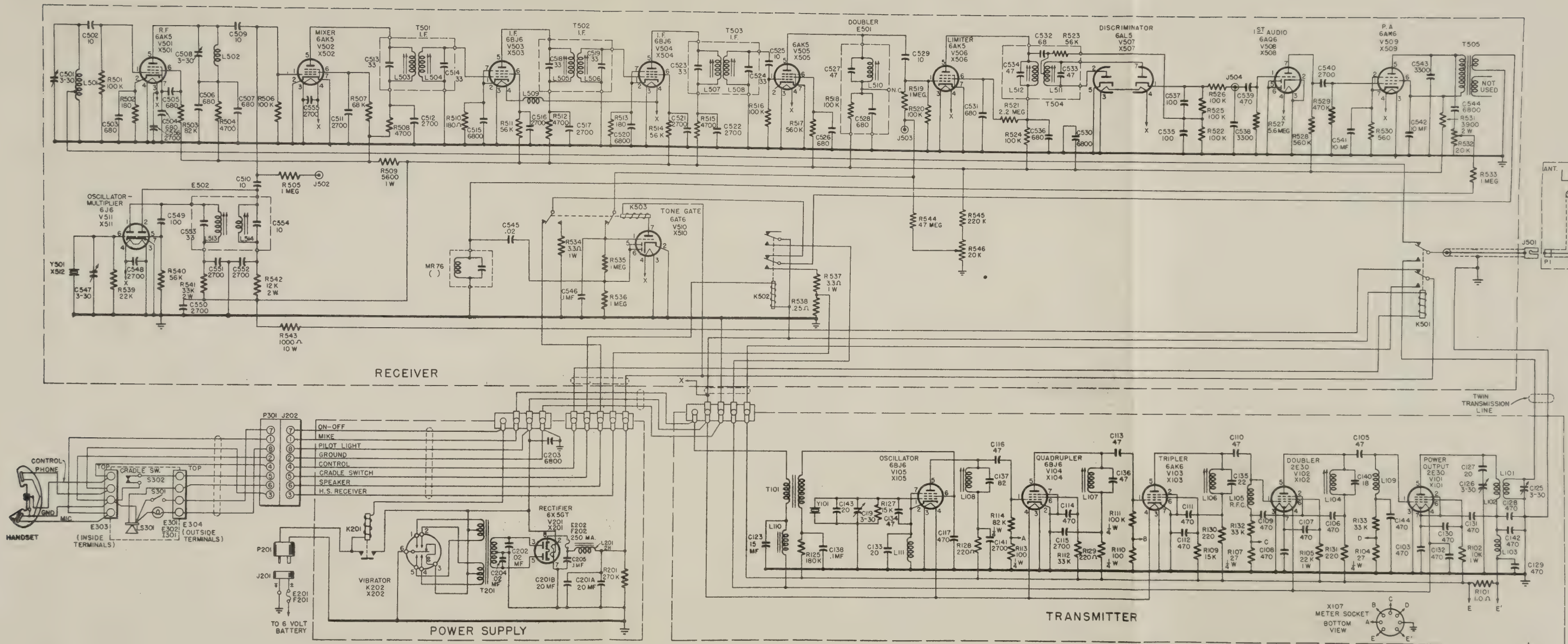
E:
ALL RESISTANCE IN OHMS AND ALL CAPACITANCE
IN MMF. UNLESS OTHERWISE STATED.
ALL RELAYS SHOWN WITH PRIMARY POWER OFF.



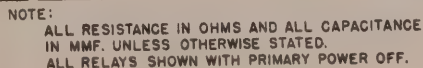
TYPE MRT-3B, SCHEMATIC DIAGRAM

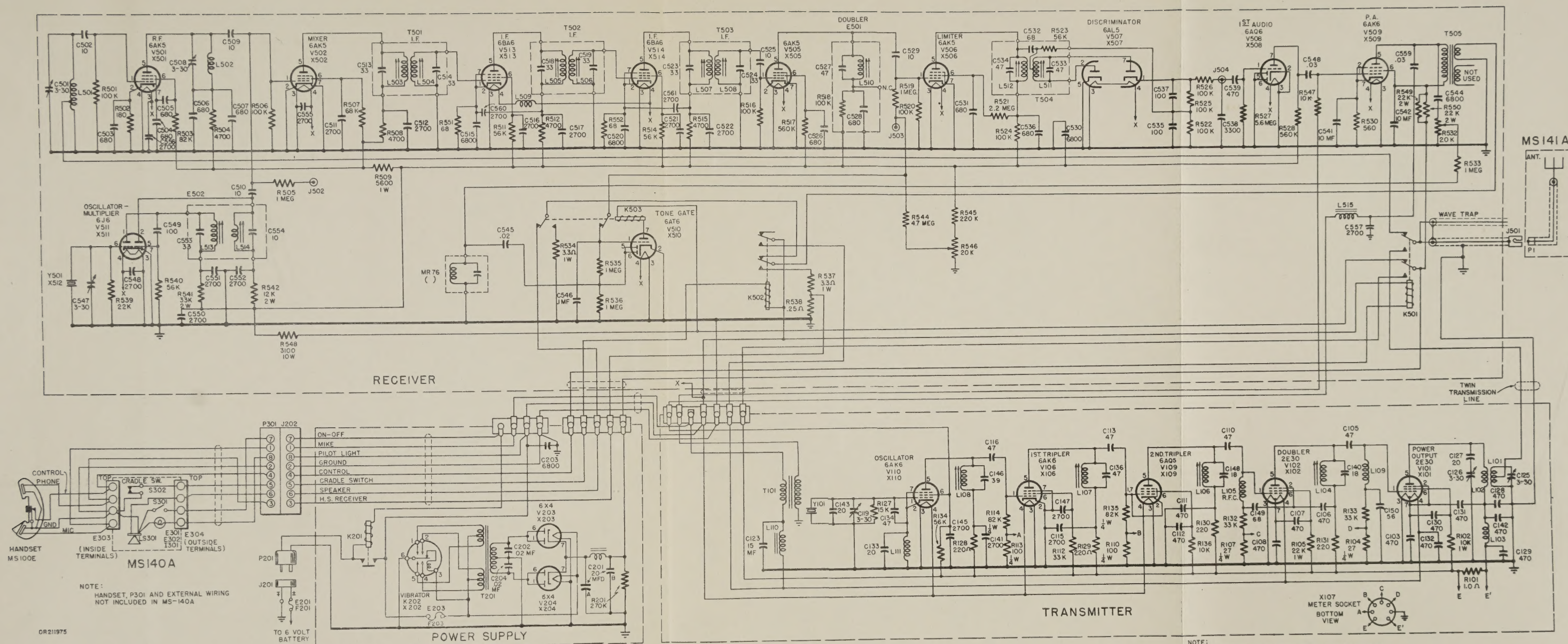


SCHEMATIC DIAGRAM
 REVISED 6-15-48



NOTE:
ALL RESISTANCE IN OHMS AND ALL CAPACITANCE
IN MMF. UNLESS OTHERWISE STATED.
ALL RELAYS SHOWN WITH PRIMARY POWER OFF.





TYPE MRT-3B, SCHEMATIC DIAGRAM
REVISED 4-12-49

